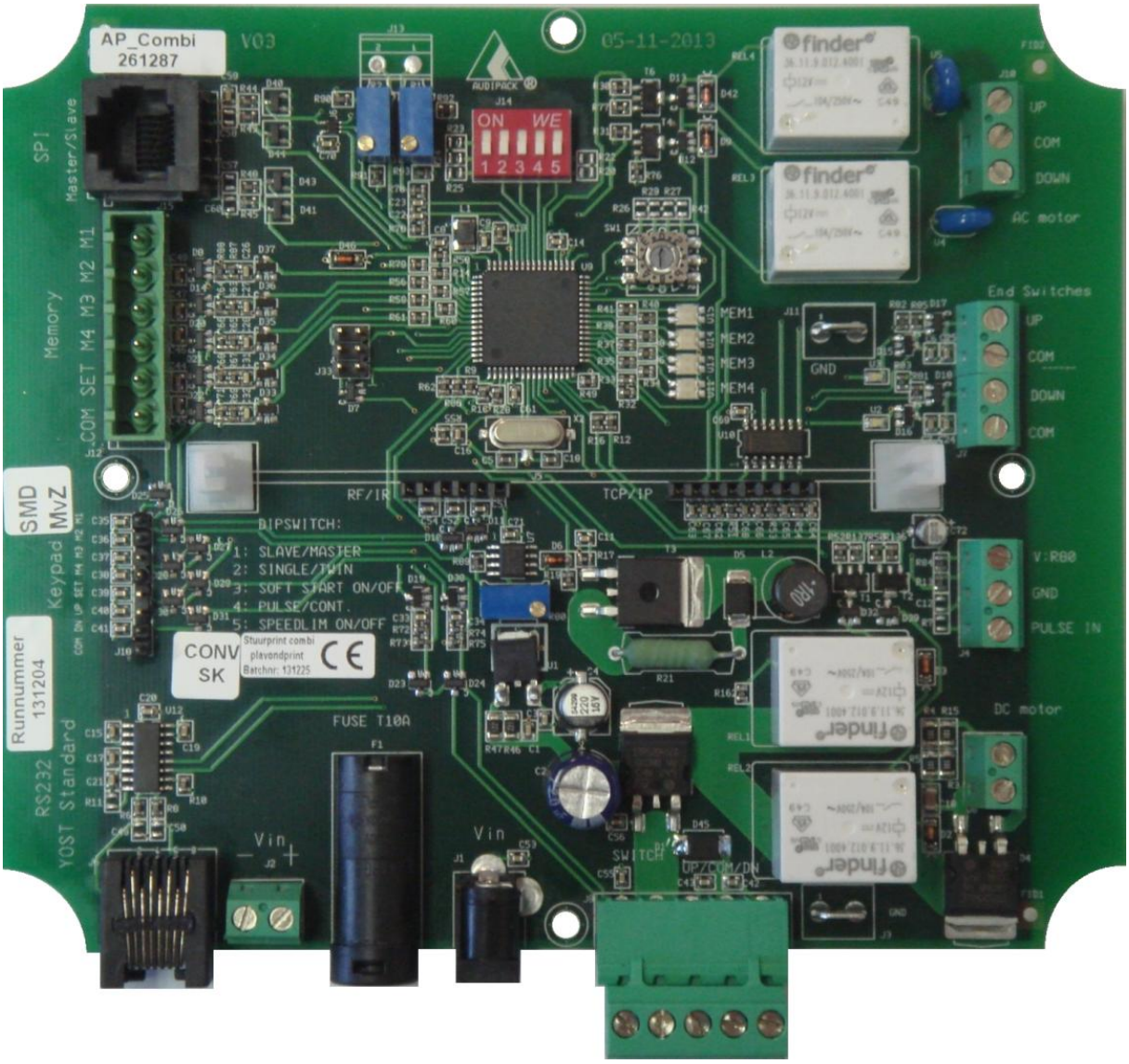
261287-261377
Besturingsprint

User manual
Gebruikshandleiding



Read the manual carefully before installing.

Lees aandachtig de gebruiksaanwijzing alvorens te beginnen met de installatie.

Bitte beobachten Sie den Gebrauchsanleitung bevor Sie anfangen mit installieren!

S'il vous plaît, lisez attentivement le mode d'emploi avant commencer l'installation!

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1. Product description

The 261287 control board is developed to control DC-motors up to 30 VDC and switch AC 230 Volt motors.
It is also possible to control AC motors by relay dry contacts. Position control is possible for both types of motors.

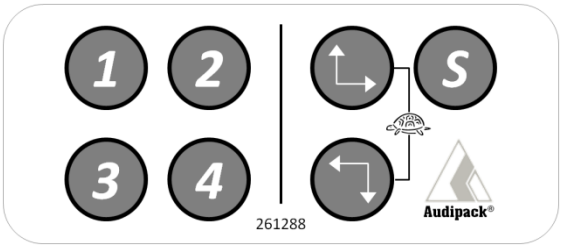
The 261377 control board is developed to control only DC-motors up to 30 VDC. Position control is possible for DC motors.

1.1. Scope of delivery

- Product
- Manual
- 5-pole connector with jumper
- 6-pole connector

1.2. Accessories

- Cable RS232 serial communication RJ45 ⇔ Sub-D9 (female)
- Cable serial adapter Sub-D9 (male) ⇔ USB (Part number 320139)
- Keypad(Part number 261288)



2. Required for installation

2.1. Tools

To install the product, the following tools are required;

2.2. Experiences

Basic electrical knowledge is recommended.

2.3. Homing

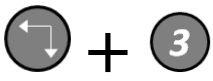
If the control board will be used with position control the reference or home position have to be set.
Position control is available on program number "1", "2", "3" en "5".

The procedure for homing is as follows:

- The motor runs in low speed to down limit switch
- The motor stops when the (down) limit switch is activated
- The motor runs in low speed in de reverse direction
- The motor stops 10 count after the (down) limit switch is deactivated

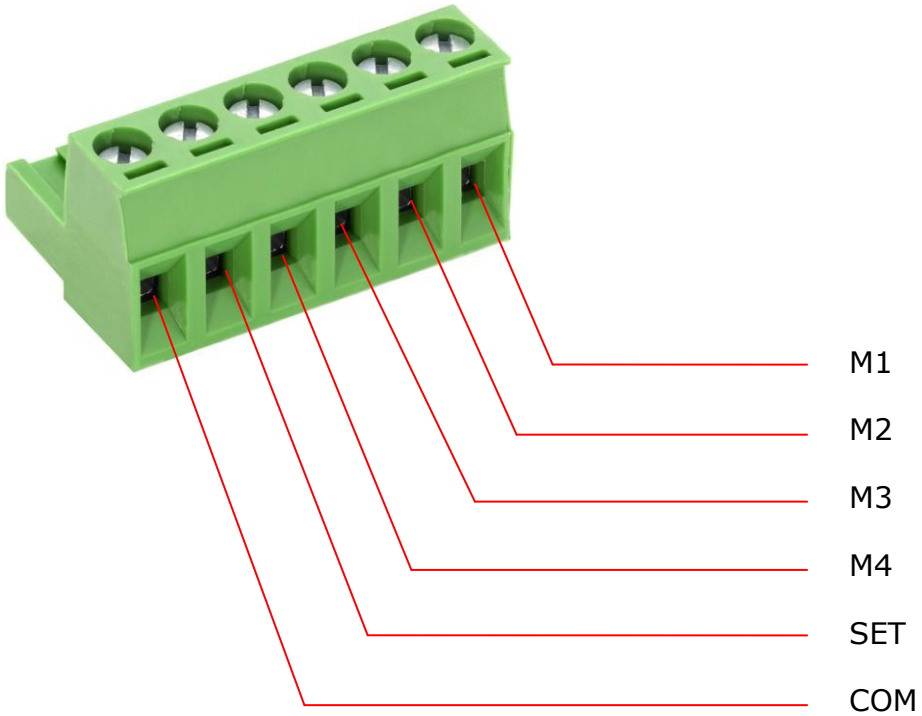
!! In program number "5" homing is in the opposite direction !!
(limit switch "UP" will be activated)

Homing can be activated by:

- Keypad 
- RS-232 home, enter
- Program number "2" auto homing

Motor control by input terminals

3. Control by inputs 6-pole connector



3.1. Moving to memory positions

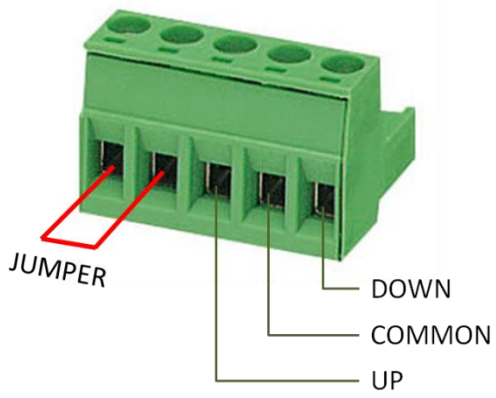
Move to memory position 1 make a connection between COM + M1
Move to memory position 2 make a connection between COM + M2
Move to memory position 3 make a connection between COM + M3
Move to memory position 4 make a connection between COM + M4

3.2. To set a memory position

To set a memory position:

- Make an interconnection between COM + SET
- Maintain this interconnection, and
- Make an interconnection between COM + M1, M2, M3 or M4, depends on the memory you want to store.
- Disconnecting all the above connections will set the required memory position. (an audible "click" is notable)

4. Control by inputs 5-pole connector



The connection of the jumper can be replaced by a safety or emergency contact. Removing the jumper completely disconnect the power from the control board.

4.1. Moving to memory positions

Move to memory position 1 or down/left direction make a connection between COMMON and DOWN.
Move to memory position 2 or up/right direction make a connection between COMMON and UP.

5. Control by RS-232 serial communication

5.1. Connection of the RS232

5.2. Moving the lift by serial communication (RS-232)

Moving up	= "o" enter (alphabetic letter)
Moving down	= "n" enter (alphabetic letter)
To M1	= "m1" enter
To M2	= "m2" enter
To M3	= "m3" enter
To M4	= "m4" enter

For more information see register manual 1.1 and 1.2

6. General information

6.1. Definitions

Homing - Move motor to zero or reference point (counter)
Twin mode - Parallel or synchronous mode for 2 separate drive units

6.2. End switches

End switches, also called limit switches restrict the movement of the motor in both directions.
The limit switches are related to the rotation direction of the motor.

It is important to connect the motor so that the direction of motion corresponds to the controls and limit switches.

In any case the movement stops on both switches, but when the motion direction and limit switch do not match, the two led's (U2 and U3) of the corresponding limit switches on the PCB start blinking.

6.3. Memory positions and directions

The memory positions M1 to M4 must be set in a specific order in between the two limit switches. They differ of the selected program and are also related to the buttons of the remote control.

Program "0" and "4"
M1 correspond with the left/down direction
M2 correspond with the right/up direction
M3 is not assigned
M4 is not assigned

Program "1"
M1 correspond with the left/down memory position between **M3** and **M4**, and down position of the RC (free programmable)
M2 correspond with the right/up memory position between **M3** and **M4**, and up position of the RC (free programmable)
M3 lowest memory position, close to limit switch down (factory setting)
M4 upper memory position, close to limit switch up (factory setting)

Program "2", "3" and "5"
M1 correspond with down position of the RC (free programmable)
M2 correspond with the up position of the RC (free programmable)
M3 memory position is free programmable
M4 memory position is free programmable

6.4. Memory position control

Memory position M1 to M4 can be set in three different ways.

- By the keypad on the electrical control box
- By the memory and motor control terminal 10
- By serial communication via RS-232

In program number "**1**" M3 and M4 are protected and can only be stored using a PIN-code.

Set the memory position by the foil switch

6.5. Error reset

All errors can be reset by disconnecting the power from the control board.

Take at least 10 seconds to power up.

The only exception is if two control boards are in twin mode.
If an synchronous error occurs then both motors have to be reset and homed separately. Taking into account of mechanical damage.

Settings

7. Program rotary switch (SW1)

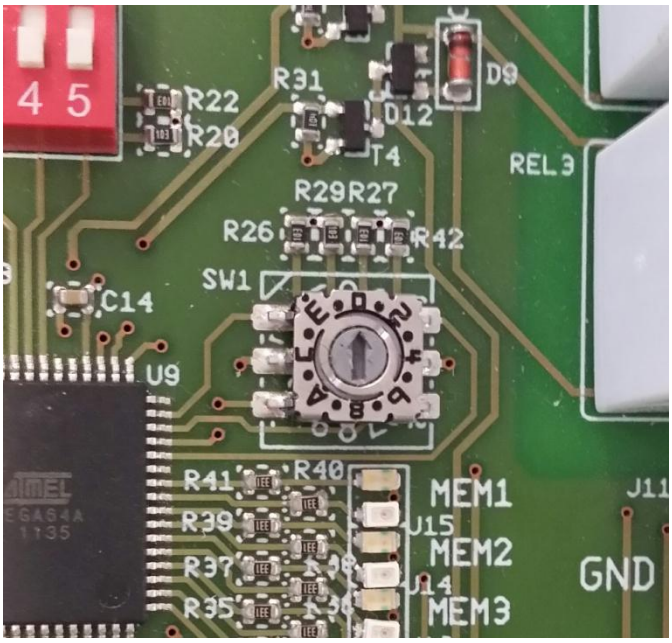
7.1. Precautions

Before changing the program state disconnect the power from the control board. Set memory positions under load. Place the projector or flat screen before storing the memory positions.

7.2. Rotary switch positions versus functions

Rotary switch on position "0" = DC motors up to 30VDC without position control
Rotary switch on position "1" = DC motors up to 30VDC, column lifts with intern limit switches and position control.
Rotary switch on position "2" = DC motors up to 30VDC with external limit switches and position control, auto homing.
Rotary switch on position "3" = DC motors up to 30VDC with external limit switches and position control, manual homing.
Rotary switch on position "4" = Single phase AC tube motors with external limit Switches .
Rotary switch on position "5" = Single phase AC tube motors with external limit Switches and position control, manual homing.

(4 & 5 not applicable on PCB 261377)



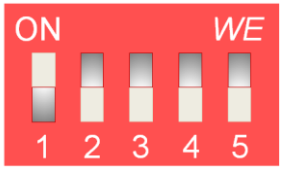
7.3. Rotary switch positions versus product examples

Rotary switch on position "0" = MKT-150WS, MKT-200WS, MKT-250WS, MKT-265WS
Rotary switch on position "1" = FFCL-XXXX, Column lifts
Rotary switch on position "2" = PRK-250, PRK-500, PRK-750, PCL-M350, PCL -X350 and MKT-C150
Rotary switch on position "3" = PRK-250, PRK-500, PRK-750, PCL-M350, PCL -X350 and MKT-C150
Rotary switch on position "4" = Universal AC tube motors
Rotary switch on position "5" = PCL-1070, PCL-2050, PCL-3050, PCL-5050 Switches and position control, manual homing.

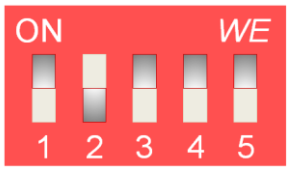
(4 & 5 not applicable on PCB 261377)

8. Function dipswitches (J14)

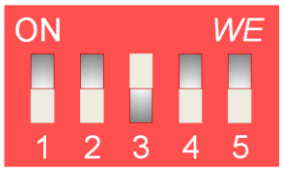
Dipswitch position 1 = Master/slave - slave "on" (in twin-mode only)



Dipswitch position 2 = Single/twin - single mode "on"

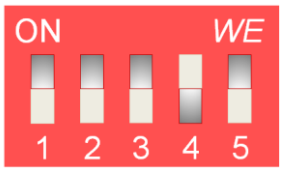


Dipswitch position 3 = Soft start/stop on/off - soft start/stop "on"

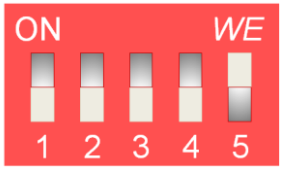


Dipswitch position 4 = Pulse/continue - pulse "on"

!! When pulse is "on", the direction buttons are working as a latching switch !!



Dipswitch position 5 = Speed limit on/off – speed limit "on"



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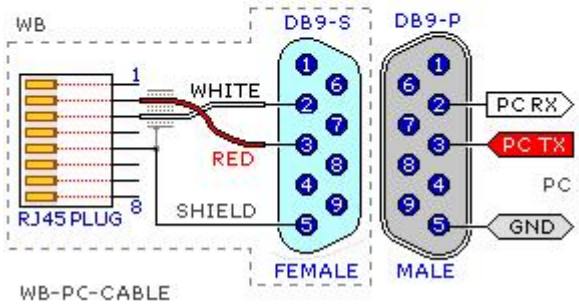
9. Serial communication RS-232

Cable RS232 serial communication RJ45 ⇔ Sub-D9f (Part number 320137)
Cable serial adapter Sub-D9 (male) ⇔ USB (Part number 320139)

9.1. Connections

Put the RJ-45 male connector into female connector 8 on the control board and into the Sub-D9 male connector of your computer.

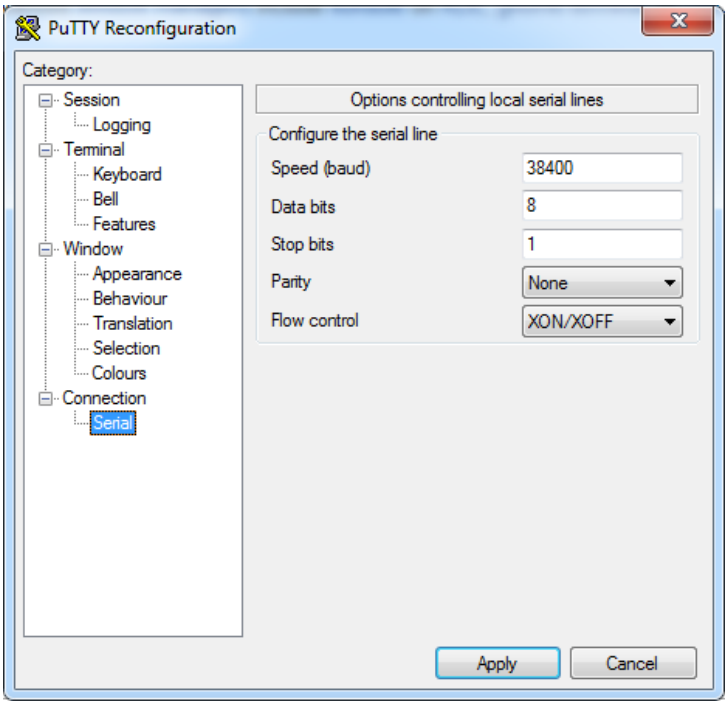


Connections

If your computer doesn't have a serial Sub-D9 serial port connector, a serial adapter Sub-D9 (male) ⇔ USB cable is needed. (Part number 320139)

9.2. Software

An example of a terminal emulator software to control the control board is "PuTTY" and can be found to follow this link:
http://the.earth.li/~sgtatham/putty/latest/x86/putty.exe



10. Electric connections

POWER SUPPLY

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Connections

1 and 2 are power supply connections up to 30 Volt DC.

Connector 1 is suitable for a barrel plug with a diameter of 5.5 mm.
The inner contact also called tip is the positive pole (+)

3 Connector external control

4 Motor terminal DC

5 Relays output UP/DOWN

6 Terminal limit switches

7 Sensor counter

8 Serial communication (RS232)

9 Heartbeat cable connector

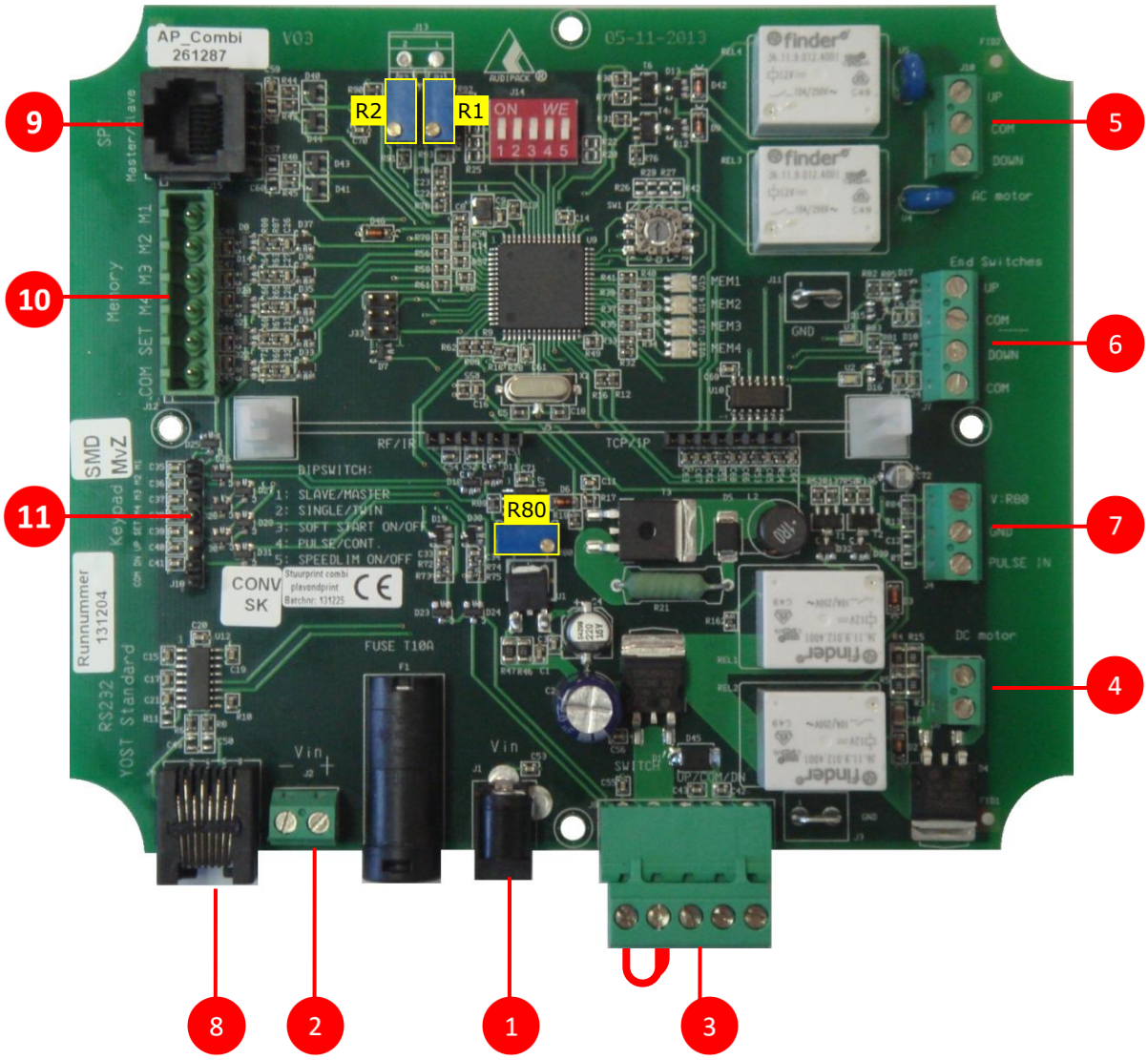
10 Connector memory position control and memory store function

11 Connector keypad

R1 = Potentiometer for maximum motor current
R2 = Potentiometer for maximum motor voltage (% of power supply)
R80 = Potentiometer supply voltage counter sensor (factory setting = 5VDC)

Connections

Table 1 - Electrical connections



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11. Keypad (261288)

With the keypad in combination with the control board (261287 or 261377) button control

Table 2 – Buttons keypad (part number: 261288)

1					Go to memory position 1
2					Go to memory position 2
3					Go to memory position 3
4					Go to memory position 4
S					Set memory in combination with 1,2,3 or 4
↗					Moving direction Up/right
↙					Moving direction Down/left
S	+	1			Set memory position 1 Memory indicator LED1 turns from orange (pushed) to green (released)
S	+	2			Set memory position 2 Memory indicator LED2 turns from orange (pushed) to green (released)
S	+	3	→	Pin	Set memory position 3 with PIN-code Memory indicator LED3 turns from orange (pushed and released) to green (pin-code correct)
S	+	4	→	Pin	Set memory position 4 with PIN-code Memory indicator LED4 turns from orange (pushed and released) to green (pin-code correct)
↗	+	↙			Toggle between fast and slow motion (DC output only)
↙	+	3			"Homing"
1	2	3	4		"Reset" the control board by pushing all buttons together during power up. *Memory positions remain there current value*

12. INSTRUCTIONS RS232

12.1. TERMINAL INPUT INSTRUCTIONS

The terminal input or instruction by other devices thru RS232 or not context sensitive.

12.2. INSTRUCTIONS TO CONTROL THE MOTOR

B	=	Switch slow/fast model (*DC Output only*)
N	=	Move motor down
O	=	Move motor up
S	=	Motor stop

12.3. INSTRUCTIONS TO MOVE THE MOTOR TO A MEMORY POSITION

M1	=	Go to memory position 1
M2	=	Go to memory position 2
M3	=	Go to memory position 3
M4	=	Go to memory position 4

12.4. PROGRAM MEMORY POSTIONS

P1	=	Set new value for memory position 1
P2	=	Set new value for memory position 2
P3	=	Set new value for memory position 3
P4	=	Set new value for memory position 4
PF	=	Set memory positions to factory settings

P3 and P4 can only be stored in factory mode.

12.5. FACTORY MODE

To set the control board into the factory mode, type: **[Esc]~[Enter]**

Returns with the text: "FM is ON"

To turn the factory mode off, type: **[Esc] [Enter]**

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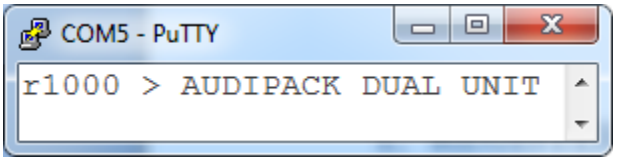
Returns with the text: "FM is OFF"

12.6. MISCELLANIOUS INSTRUCTIONS

D	=	Switch debug on/off
R<X>	=	Read register <X>
W<X>=<data>	=	Write <data> into register X
V<X>	=	Set PWM motor speed <X> (0 < X > 1023)
K<X>	=	Set motor position in counts (50 < X > 60000)

12.7. REGISTER R1000 [Device Name]

In register "R1000" the device name is stored .
R1000[Enter]



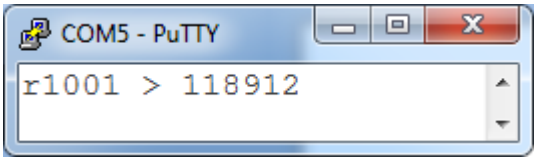
Returns "AUDIPACK DUAL UNIT"

12.8. REGISTER R1001 [Input Status]

In register "R1001" the status of the inputs can be viewed.
The result is a DEC number.

Register R1001	131072	65536	36768	18384	9192	4096	2048	1024	516	256	128	64	32	16	8	4	2	1
18 Bits	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Description	Dipswitch 1	Limit Switch Up	Limit Switch Down	Dipswitch 2	Dipswitch 5	Dipswitch 4	Dipswitch 3	Rotary switch bit3	Rotary switch bit2	Rotary switch bit1	Rotary switch bit0	Down	Up	Store	Preset M4	Preset M3	Preset M2	Preset M1

R1001[Enter]



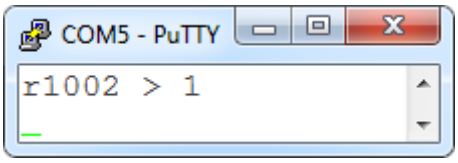
Returns decimal number "118912" (DEC)
and is equal to a 18-Bits binary "010001100010010010" (BIN)

18 Bits	0	1	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0
Description	Dipswitch 1	Limit Switch Up	Limit Switch Down	Dipswitch 2	Dipswitch 5	Dipswitch 4	Dipswitch 3	Rotary switch bit3	Rotary switch bit2	Rotary switch bit1	Rotary switch bit0	Down	Up	Store	Preset M4	Preset M3	Preset M2	Preset M1

12.9. REGISTER R1002 [Control Function]

In register "R1002" the status of the control function input is stored.
This number could be "0" or "4".

R1002[Enter]



Returns "1"

Table 3 – Rotary switch control function

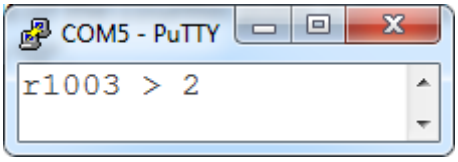
Position	Description	Connector
0	DC motor control without position control	4 (manual)
1	DC motor control with position control and build in limit switches (e.g. columns)	4 (manual)
2	DC motor control with position control auto homing	4 (manual)
3	DC motor control with position control manual homing	5 (manual)
3	Relay output control without position control	5 (manual)
4	Relay output control with position control	5 (manual)

12.10. REGISTER R1003 [UP/DOWN Status]

In register "R1003" the status of the UP/DOWN motor sequence is stored.

Register R1003				
DEC	3	2	1	0
Description	UP/DOWN STOP	UP/DOWN RELEASED	UP/DOWN PRESSED	UP/DOWN START

R1003[Enter]



Returns decimal number "2".
Number "2" equals "UP/DOWN RELEASED".

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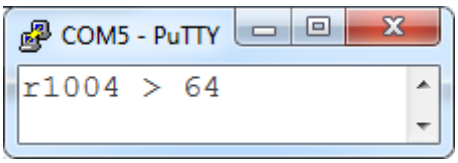
12.11. REGISTER R1004 (Motor Status]

In register "R1004" the status of the motor can be viewed.
The result is a DEC number.

Register R1004	512	256	128	64	32	16	8	4	2	1
10 Bits	9	8	7	6	5	4	3	2	1	0
Description	MOTOR CONNECTION ERROR	MOTOR CURRENT ERROR		MOTOR DOWN	MOTOR UP		MOTOR PRESET 4	MOTOR PRESET 3	MOTOR PRESET 2	MOTOR PRESET 1

R1004[Enter]



Returns decimal number "64" (DEC)
and is equal to a 10-Bits binary "0001000000" (BIN) number.

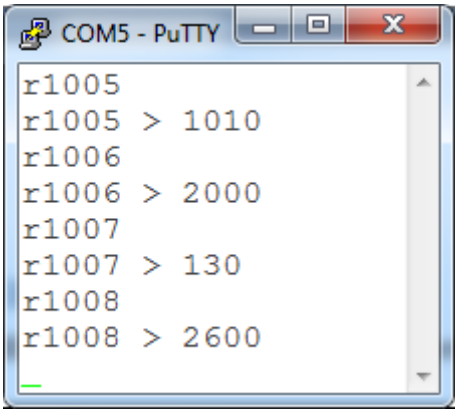
10 Bits	0	0	0	1	0	0	0	0	0	0
Description	MOTOR CONNECTION ERROR	MOTOR CURRENT ERROR		MOTOR DOWN	MOTOR UP		MOTOR PRESET 1	MOTOR PRESET 1	MOTOR PRESET 1	MOTOR PRESET 1

12.12. REGISTER R1005-R1008 [Memory Preset Values)

In the registers "R1005" to "R1008" the preset values of the memory positions are stored.

Register	Description	Value range
R1005	M1 counter value	50-60000 counts
R1006	M2 counter value	50-60000 counts
R1007	M3 counter value	50-60000 counts
R1008	M4 counter value	50-60000 counts

R1005[Enter]
R1006[Enter]
R1007[Enter]
R1008[Enter]



Returns decimal numbers "1010", "2000", "130", "2600".

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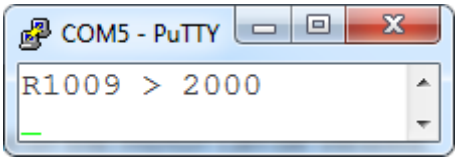
12.13. REGISTER R1009 [Request Count]

In the register "R1009" the "Requested count" is stored.

R1009[Enter]

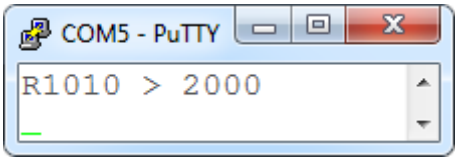


Returns decimal number "2000".

12.14. REGISTER R1010 [Motor Position Count]

In the register "R1010" the "Motor position" is stored.

R1010[Enter]



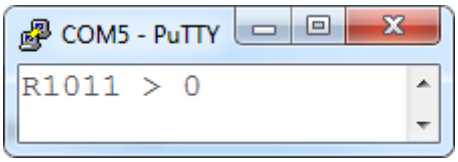
Returns decimal number "2000".

12.15. REGISTER R1011 [Motor Error]

In the register "R1011" the "Motor error" is stored.

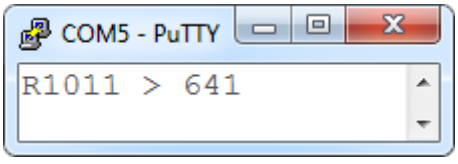
Register	Value Hexadecimal [decimal]	Error
R1011	1[1]	Current error (DC output only) Current is higher than adjusted current value or Current is too low when motor is activated
	2[2]	Motor connection error (DC output only) Limit switch up activated when motor runs down Limit switch down activated when motor runs up
	4[4]	Motor sync error (parallel mode) Number of pulses between master and slave is too many
	8[8]	Heartbeat error (parallel mode) Slave receives no heartbeat from master (connection error)
	10[16]	Limit switch error Limit switch up/down activated when motor is between memory position M1 or M2
	20[32]	Pulse error Time between pulses is too long
	40[64]	CRC error EEPROM error
	80[128]	Memory error Motor didn't reach the requested position
	100[256]	Slave error (parallel mode) Error occurred in slave device
	200[512]	Master error Error occurred in master device

R1011[Enter]



Returns decimal number "0". No error occurred.

R1011[Enter]



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Returns decimal number "641". 641 decimal = 281 hexadecimal.

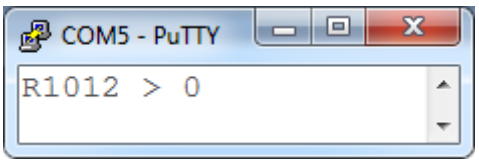
When we look at the error table we find the following numbers:
1 = Current error
80 = Memory error
200 = Master error

12.16. REGISTER R1012 [Motor Speed Slow mode]

In the register "R1012" the preset status "Slow mode" is stored.
(DC output only)

1 = Slow mode
0 = No slow mode

R1012[Enter]



Returns decimal number "0".
This represents preset: No slow mode

RS-232 registers

12.17. REGISTER R1013 [Memory Preset Status]

In the register "R1013" the status "Calibration" is stored.

0 = Memory preset ready

1 = Preset memory position 1 request

S	+	1			Set memory position 1 Memory indicator LED1 turns from orange (pushed) to green (released)

2 = Preset memory position 2 request

S	+	2			Set memory position 2 Memory indicator LED2 turns from orange (pushed) to green (released)

4 = Preset memory position 3 request

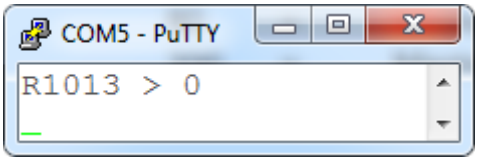
S	+	3			Set memory position 3 with PIN-code Memory indicator LED3 turns from orange (pushed) to green (released)

8 = Preset memory position 4 request

S	+	4			Set memory position 4 with PIN-code Memory indicator LED4 turns from orange (pushed) to green (released)

16 = New value is stored

R1013[Enter]

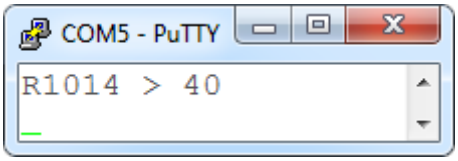


Returns decimal number "0".
This represents preset: Ready to preset a memory position

12.18. REGISTER R1014 [Delta pulse]

In the register "R1014" the "delta pulse" is stored.

R1014[Enter]



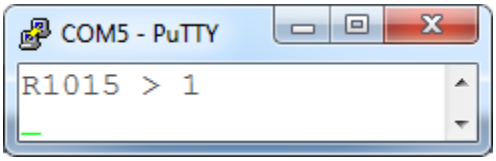
Returns decimal number "40".

12.19. REGISTER R1015 [Master/Slave Mode]

In the register "R1015" the preset "Master/Slave mode" is stored. (DC output only)

1 = Master
0 = Slave

R1015[Enter]



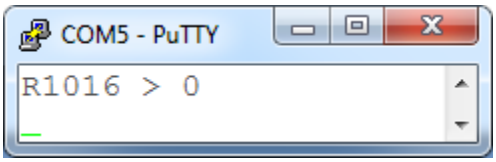
Returns decimal number "1".
This represents preset: Master

12.20. REGISTER R1016 [Single/Parallel Mode]

In the register "R1016" the preset "Single/Parallel mode" is stored. (DC output only)

0 = Single mode
1 = Parallel mode

R1016[Enter]



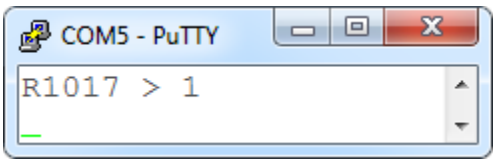
Returns decimal number "0".
This represents preset: Single mode

12.21. REGISTER R1017 (Soft Start Mode)

In the register "R1017" the preset status "Soft start mode" is stored. (DC output only)

0 = Ramp up/down
1 = No ramp up/down

R1017[Enter]



Returns decimal number "1".
This represents preset status: No ramp up/down

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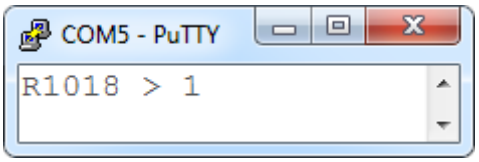
12.22. REGISTER R1018 [Pulse/Continue Mode)

In the register "R1018" the preset "Pulse/Continue mode" is stored.
(DC output only)
0 = Pulse (latch)
1 = Continue (closed contact)

R1018[Enter]

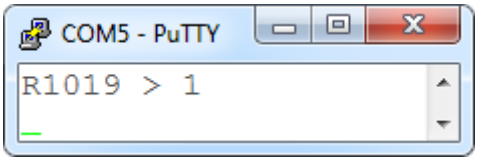


Returns decimal number "1".
This represents preset: Continue (Up/Down NO-contact must be continue closed to run the motor)

12.23. REGISTER R1019 [Adjustable Speed Limit Mode]

In the register "R1019" the preset status "Speed limit " is stored.
(DC output only)
0 = Speed limit
1 = No speed limit

R1019[Enter]



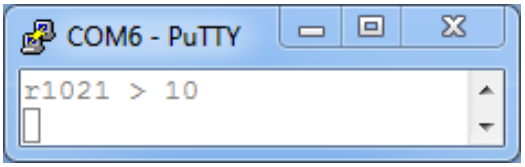
Returns decimal number "1".
This represents preset status: No speed limit

The speed (PWM output voltage) can be adjusted by potentiometer R2.
!! The output voltage is a percentage of the supply voltage !!

12.24. REGISTER R1021 [limit switch hysteresis homing]

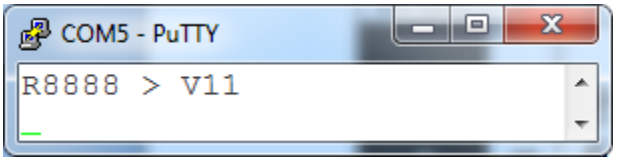
In the register "R1021" the value of the limit switch hysteresis for homing is stored. The factory setting is "10"

R1021[Enter]



12.25. REGISTER R8888 [Software Version]

In register "R8888" the software version is stored .
R8888[Enter]



Returns "V11"

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13. Specifications

13.1. Technical data

V_{input}	:	12-30	Volt DC
$I_{max.output}$	:	10	Ampere
$V_{out.counter}$	:	5-14	Volt DC
$V_{in.counter}$	:	5	Volt DC

13.2. AC output relays (261287)

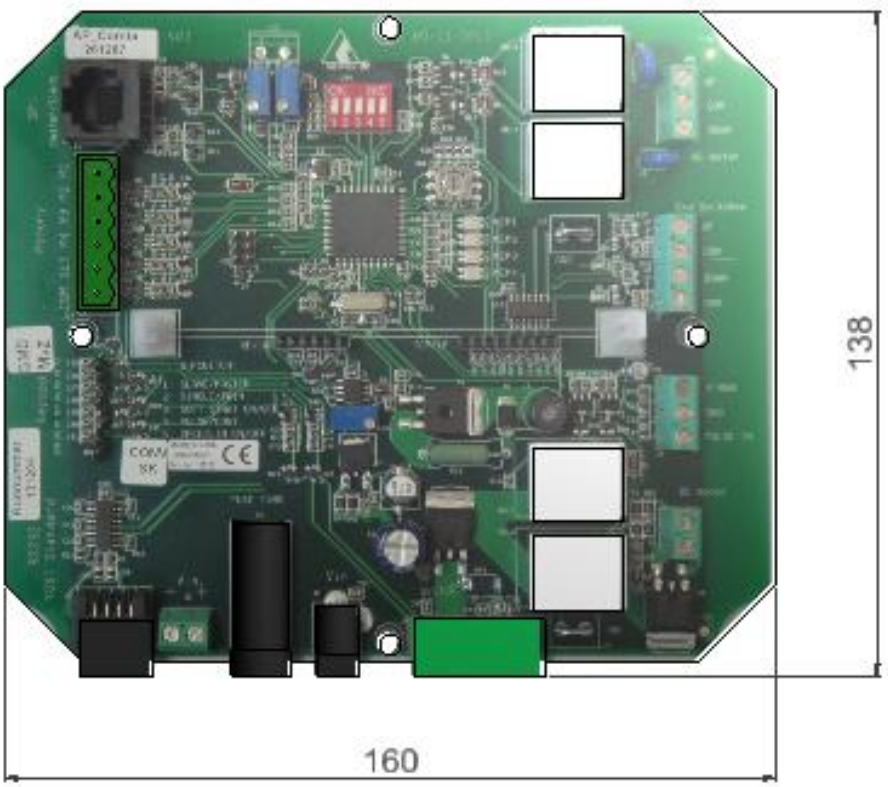
V_{max}	:	230	Volt AC
I_{max}	:	10	Ampere
P_{max}	:	500	Watt

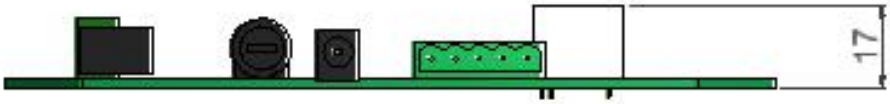
14. Maintenance

N.A.

Technical data

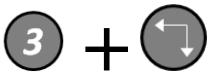
15. Dimensions and illustrations



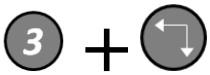


16. Frequently asked questions

- There is an abnormality in the position that you want?
  Re: Follow the procedure for manual homing.



- Control board doesn't react without error message
  Re: Follow the procedure for manual homing.



- The two led's (U2 and U3) of de corresponding limit switches are both blinking synchronous
  Actuated limit switch do not match the motor direction of rotation or

  Motor current exceeds motor current setting (R2) or

FAQ

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